Louisville 2005: STAR Adopted

Art Williams

Key Elements

- Scientific evidence of a problem
  - West Louisville Air Toxics Study
  - EPA Relative Risk Screening Assessment

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West Louisville Air Toxics Study
WLATS

- 1-Year Monitoring Study

  April 2000 to April 2001

- Results:
  - 17 carcinogens with risk greater than one in one million ($1x10^{-6}$)
  - 1 chemical with Hazard Quotient (HQ) of 13.9

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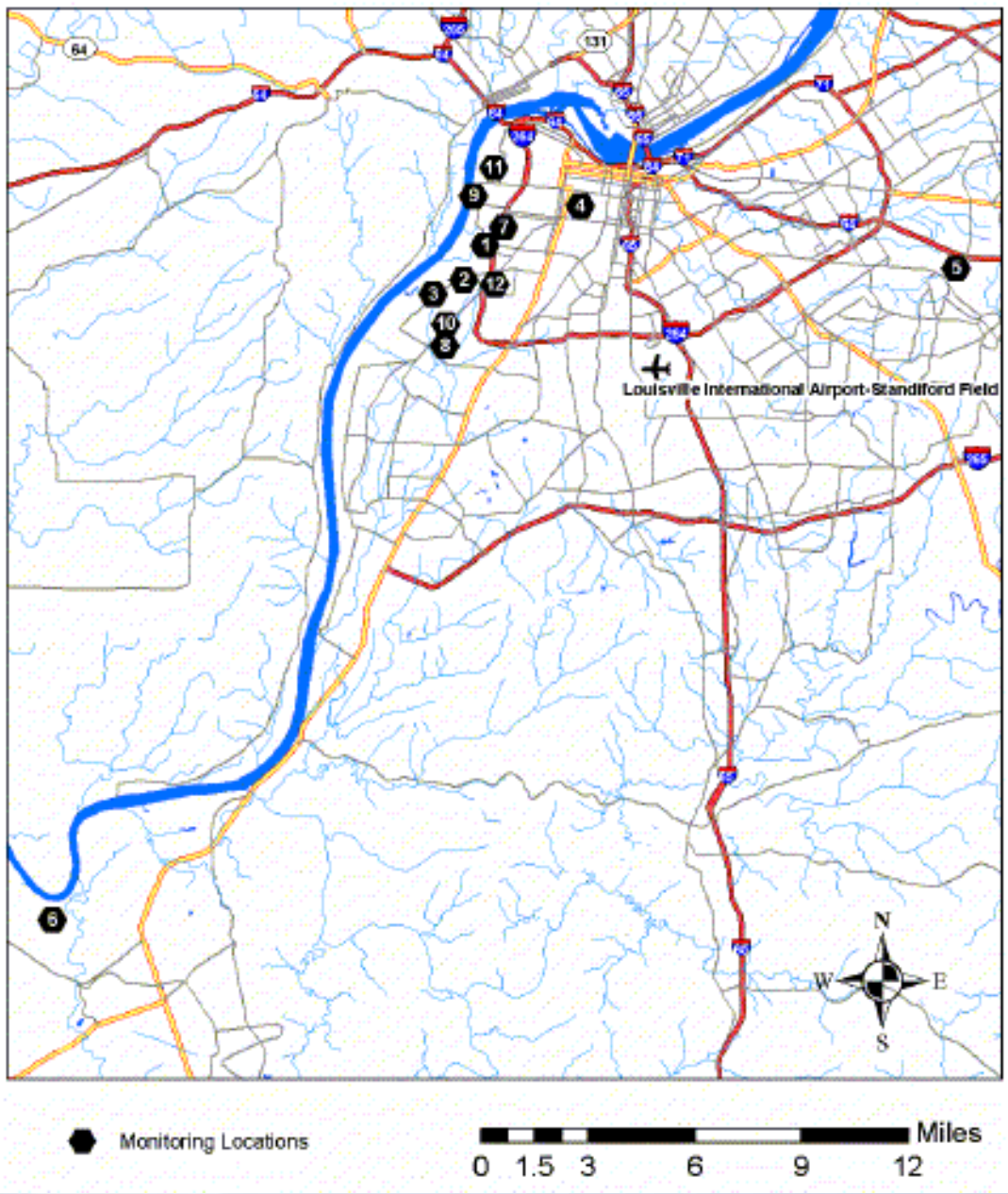
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Louisville International Airport-Standiford Field
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Monitoring Locations
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EPA-4 Air Toxics
Relative Risk Screening Analysis

- Jefferson County, KY, ranked 1st of the 736 Counties in the 8 States of Region 4
  - Part of score was based on reported TRI 2001 actual emissions
  - Risk Screening Environmental Indicator (RSEI) model analyzed entire county, including many areas not covered by West Louisville Air Toxics Study

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Key Elements

- Effective, credible stakeholder process
  - West Jefferson County Community Task Force

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Louisville: It All Started in 1996 ...

- West Jefferson County Community Task Force (WJCCTF)
- Comprised of Citizens, Industry, Academia, and Government
  - 1996 - Study issues of concern
  - Air toxics from "Rubbertown" identified as major issue
  - First step – air toxics monitoring study

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Key Elements

- EPA assistance
  - Technical
  - Policy
  - Financial

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Key Elements

- Media attention
  - The Courier-Journal

    www.courier-journal.com
  - Knowledgeable reporter

    Jim Bruggers (former President, SEJ)

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Key Elements

- Public support
- Mayoral and legislative support
- Board Support

Key Elements

- Status of EPA toxics programs
- Selective industry resistance to voluntary action

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Key Elements

- Regulatory agency
  - Effective
  - Credible
  - Legal authority

STAR Program

Strategic **T**oxic **A**ir **R**eduction

- First draft – September 16, 2004
  - Over 60 meetings, 1300 in attendance
  - 200+ informal comment/response document
- Proposed – January 14, 2005
- Adopted – June 21, 2005

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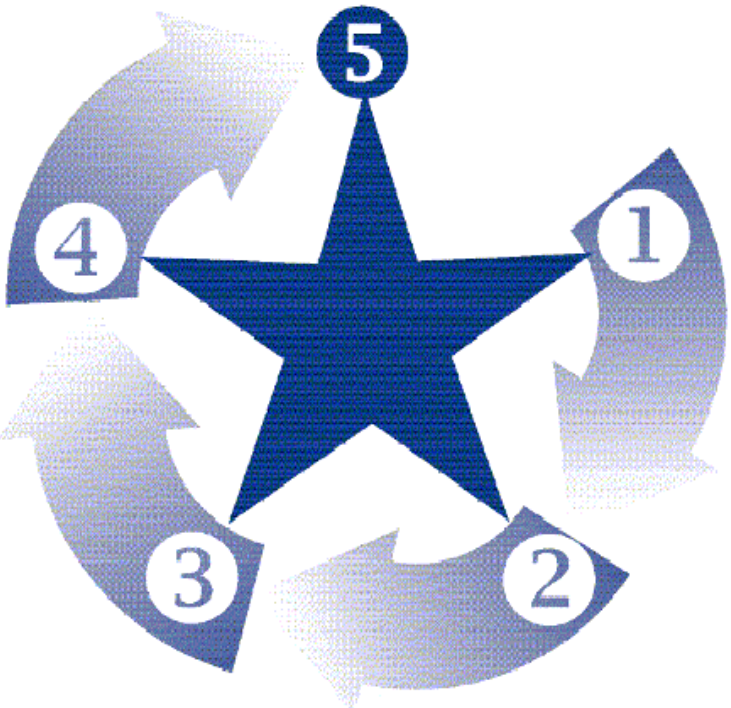
STAR Program

Strategic Toxic Air Reduction



1. Emissions levels
2. Release points
3. Modeling
4. Reduction plan
5. Compliance

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What Compounds?

- Category 1 – 18 WLATS
  - Existing and New/Modified
- Category 2 – 19 RSEI (EPA-4 ATRRSA)
  - Existing and New/Modified
- Category 3 – 33 Urban Air Toxics
  - New/Modified only
- Category 4 - 188 HAPs
  - New/Modified only

- Toxic Air Contaminant (TAC) defined as any compound/authority to address

Consideration of Multiple Pollutants

- Carcinogens – accumulate risk from all "applicable" carcinogens
- Noncancer risk – Does Not accumulate HQ from similar adverse effect compounds

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Basis for Benchmark Ambient Concentration For Carcinogens

- **BAC_c** = 1×10^{-6} risk
  - URE from EPA's IRIS, California, Michigan
  - Identified as carcinogen by NTP, IARC, or ATSDR
  - Default 0.0004 µg/m^3

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What is Acceptable?

- Carcinogens – Cancer Risk Goals
  - 1×10^{-6} – single process/single TAC
  - 3.8×10^{-6} – new processes/all TACs/single company
  - 7.5×10^{-6} – all processes/all TACs/single company
  - 10×10^{-6} – all processes/all TACs/multiple companies

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Basis for Benchmark Ambient Concentration For Noncancer Risk

- **BAC_{NC}** = 1.0 HQ
  - IRIS RfC
  - California REL
  - IRIS RfD (w/ restrictions)
  - Michigan ITSL
  - Occupational Exposure Level (OEL)
  - Animal studies (w/ restrictions for oral)
    - NOAEL/LOAEL … LC_{50} … LD_{50}
  - Default 0.04 µg/m^3

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What is Acceptable?

- Noncancer risk – Hazard Quotient (HQ) Goals
  - 1.0 HQ – single process/single TAC
  - 1.0 HQ – new processes/single TAC/single company
  - 1.0 HQ – all processes/single TAC/single company
  - 1.0 HQ – all processes/single TAC/multiple companies

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What is Acceptable?
Modification of Goal

- Cancer risk
  - Up to 7.5 x 10^{-6}
    - Public Review, District Approval
    - T-BAT (Best Available Technology for Toxics)
  - 7.5 to 25 x 10^{-6}
    - Public Review, District Approval
    - T-BAT, Land use and demographic factors
  - 26 to 100 x 10^{-6}
    - Public Hearing Required, Board Approval
    - T-BAT, Land use and demographic factors

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What is Acceptable? Modification of Goal

- Noncancer risk
  - 1.0 to 3.0 HQ
    - Public Review, District Approval
    - T-BAT, Land use and demographic factors

What Sources are Regulated?

- New/Modified and Existing
  - Title V and FEDOOP (FESOP)
  - All processes (unless de minimis)
- Minor, Area, Non-road Mobile, and Mobile sources
  - Regulation 5.30 – District to develop proposed Report and Plan of Action by 6-06
- Background concentrations
  - Not addressed

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Compliance Dates

Category 1 and 2 TACS

- Existing sources (extension allowed)
  - Title V – 2008 (+ 6 months) / 2010 (+ 1 Yr)
  - FEDOOP – 2010 (+ 1 Yr) / 2011 (+ 1 Yr)
- Minor, Area, Non-road Mobile, and Mobile sources
  - 2012

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De Minimis

- If information is based on MSDS:
  - 0.1% Carcinogen
  - 1.0% Noncarcinogen
- Trivial Activities
- Insignificant Activities
- BAC-based (using Tier 1 look-up table)
- New surface coating processes < 5 t.p.y.
- Motor vehicle fueling and refueling

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How is Acceptability Determined?

- Modeled maximum allowed concentration
  - Fence line/property line

    ("ambient air" definition)

  Consider land use and demographic factors for requested modification of goal

  (> 7.5 cancer risk, 1.0 HQ noncancer risk)

  Compare to BAC  Risk

  Increase Allowed 4.2 x for Industrial Property and 10 x for Public Roadways

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Modeling

- Tier 1 – Simple look-up table (SCREEN3)
  - 25’ building, 1.25 SH/BH, 100’ distance
- Tier 2 – Look-up table (SCREEN3)
  - Actual Building height, Stack height, Distance
- Tier 3 – SCREEN3 or TSCREEN
- Tier 4 – ISC3ST, AERMOD, or other EPA Model
  - RAIMI - Regional Air Impact Modeling Initiative (District/EPA multi-source analysis
  - AERSCREEN in the future?

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Additional District Authority

- Acute effects
- Synergistic or additive effects
- Non-inhalation routes of exposure
- Non-listed TAC

Unintended Emissions

- **1.07** Excess Emissions During Startups, Shutdowns, and Malfunctions
  - General duty to comply at ALL times, including S/S/M
  - Excess emissions are violations
  - Removed emergency/affirmative defense
  - Enforcement factors, enforcement discretion
  - Increased details reported
- **1.20** Malfunction Prevention Programs
- Enhanced Leak Detection and Repair (LDAR) Programs (To be reproposed)
  - Enhancements: Components monitored, Frequency, Leak definition, Time to repair, Third-party audit

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Strategic **T**oxic **A**ir **R**eduction

http://www.apcd.org/star

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- Adopted regulations
- Draft Final Regulatory Impact Assessment
- Benchmark Ambient Concentrations and de minimis values (lb/hr, lb/ave. period)
- Formal written comments / responses
- Dispersion modeling presentations
- WLATS background documents

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